Betel Chewing Incompletely Understood in Journal Supplement

As a medical anthropologist specializing in alcohol and drug studies, I read the December 1993 Journal supplement to volume 83 (*Effects of In Utero Exposure to Street Drugs*) with great interest. In particular, my attention was drawn to the section on pp 23–24 entitled "Studies of Drug-Exposed Pregnancies in Other Cultures." It is a factual error under "Stimulants" in this section that stimulates me to write.

The authors state: "Betel nut (the seed of the areca palm) is chewed with lime and mustard seed. . . "[1(p23)] This is both imprecise and incorrect. It is imprecise because it is not the seed of just any kind of areca palm that is chewed; there are numerous varieties of palms in the genus *Areca,* and the one with pharmacologically active properties whose nut is chewed is specifically *Areca catechu.* The authors' statement that the betel chew has mustard seed as one of its constituents is also incorrect. This confusion arises from the slang reference to the leaves, catkins, and stems of *Piper betle* as "mustard" (not, please note, "mustard seed") in some of the areas where betel is chewed. Omission of any mention of *Piper betle* as an integral part of the chew is a major lapse, since it is from this pharmacologically active member of the pepper family that betel chewing takes its name.

For the record: Betel chewing consists of three necessary ingredients: the nut of the *Areca catechu* palm; slaked lime (often prepared from ground coral or seashells); and the leaves, stems, or catkins of *Piper betle.* Both plant ingredients contain pharmacologically active alkaloids, and the lime is required to "release" them in the chew. Readers interested in further information on this subject are referred to Burton-Bradley,[1] Iamo,[2] and Marshall.[3] □

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Injection Drug Users' Needle-Cleaning Practices

Since 1986, acquired immunodeficiency syndrome (AIDS) outreach projects targeting injection drug users have promoted the use of full-strength bleach (5.25% sodium hypochlorite) to clean used hypodermic needles as a way of decreasing the likelihood of transmitting the human immunodeficiency virus (HIV).[1–5] Recently, the effectiveness of bleach in inactivating HIV in injection equipment has been questioned.[6,7] Shapshak and colleagues[8] reported that a minimum of 30 seconds is required to consistently inactivate HIV. Thus, the Centers for Disease Control and Prevention, the National Institute on Drug Abuse (NIDA), and the Center for Substance Abuse Treatment jointly issued guidelines emphasizing the importance of a minimum 30-second exposure to undiluted bleach to disinfect (but not sterilize) injection equipment.[9] We integrated the recommended cleaning procedures into the intervention of our NIDA-funded Cooperative Agreement for Community-Based Outreach/Intervention research project operating in Columbus and Dayton, Ohio.[10]

Here we report observations of the needle-cleaning practices of 77 injection drug users at baseline (T_0) and at a postintervention follow-up session (T_1) 2 to 3 weeks later. Project participants were told by the interviewer, "We want to observe how you clean your outfits with bleach. Here are a needle and syringe, bleach, water, and an empty cup. Imagine that the outfit has been used by someone else. Please show me *exactly* how you would clean the outfit." Trained observers recorded the cleaning procedures, using a stopwatch. Data were collected on the total duration of the cleaning process, the length of time bleach was left in the syringe from the time the plunger reached its apex until the bleach was completely expelled, and whether or not bleach was fully drawn into the syringe.

Afterward, subjects were instructed in the revised needle-cleaning procedures emphasizing the 30-second exposure time. Two to 3 weeks later, the injection drug users were again asked to demonstrate their needle-cleaning practices. Descriptive statistics and Student's t tests were used to compare needle-cleaning practices at T_0 and T_1.

The total cleaning procedure ranged in duration from 27 to 200 seconds at T_0. The time bleach was left in the syringe ranged from 1 to 75 seconds. Only 38% of the injection drug users completely filled their syringes with bleach, and only 8.8% exposed their syringes to bleach for at least 30 seconds. At T_1 a significant increase in mean bleach exposure time was observed ($t = -3.852$; $P < .01$). Nevertheless, the mean exposure time (24.72 seconds) remained less than the recommended 30 seconds (Table 1). About 61% of the injection drug users completely filled the syringe with bleach, and only 37.3% had a bleach exposure time of 30 or more seconds.

Although this study was conducted in project offices, the findings provide some indication of how injection drug users actually use bleach in their needle-cleaning practices. The inclusion of the revised cleaning procedures into the intervention did significantly increase bleach exposure time. Nonetheless, at T_1 the

TABLE 1—Needle-Cleaning Practices (Times in Seconds) at Baseline and Follow-Up

	Mean	SD	Median	Mode
Baseline (T_0)				
Total cleaning time	89.44	39.46	79.0	60.0
Bleach exposure time	13.06	11.91	10.5	3.0
Follow-up (T_1)				
Total cleaning time	110.06	42.22	107.0	120.0
Bleach exposure time	24.72	23.04	18.0	14.0

bleach exposure time remained insufficient for the majority of injection drug users (62.7%).

Needle cleaning procedures have often been presented without very specific guidelines (e.g., length of wash time). Since the difference between becoming HIV-infected and remaining uninfected can be affected by a few seconds' difference in bleach-exposure time, it is critical that prevention messages targeting injection drug users clearly specify disinfection practices. Although bleach is not the panacea for injection-related HIV infection, its correct use can be an important part of a comprehensive harm-reduction strategy. □

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Tap Water Scalds in New Zealand

We read with interest the finding of Webne and Kaplan that more than one quarter of the households in their study with hot water cylinder thermostats set to 50°C had water delivered to the tap at temperatures above 54.4°C.[1] We have found similar results in New Zealand.

While evaluating an educational intervention to lower household hot tap water temperatures in Dunedin, we discovered that the thermostat setting on hot water cylinders was not highly correlated with the delivery temperature of water at the tap. This relationship did not improve even when we controlled for hot water use in the previous 2 hours, age and volume of the water cylinder, number of household members, or usual household hot water usage.[2] This finding has since been corroborated in a second study in Invercargill[3] and, in fact, was alluded to in the results of two earlier New Zealand studies.[4,5]

We think this finding is actually *very* important. Many households in our studies had taken the safety measure of reducing the thermostat setting to 55°C or below, but when we measured their actual tap water temperature, it was well over 60°C. Their hot water still felt "very hot" to these people, but, because they had lowered the thermostat setting, they felt confident it was safe. Creation of this false sense of security concerns us greatly. These people are lost to any further efforts to achieve safe hot water temperatures because they believe they have taken appropriate safety measures and feel secure in their knowledge that their hot tap water temperature is "safe."

In New Zealand, the temperature promoted as "safe" is 55°C, higher than safe temperatures in most other places in the world. Studies of hot tap water injury in New Zealand have repeatedly found mean home tap water temperatures of over 60°C.[2–5] Although educational campaigns have been shown to increase public awareness and motivate people to take appropriate action (i.e., to reduce their hot water cylinder thermostat setting), there has been no marked change in mean household hot water temperatures reported or in the number of hot tap water burns treated in hospital. We have reached the conclusion that the technological problems associated with home water heating systems in New Zealand, first and foremost inaccurate thermostats, present major barriers to the reduction of tap water burns in this country. The results of Webne and Kaplan indicate this may be an issue in other countries as well. □

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Gonorrhea Rates among US Men, Adjusted for Sexual Activity

Sexual behavior is a major determinant of the risk for acquiring sexually transmitted diseases, yet sexually transmitted disease rates do not include a measure of behavior. Traditional sexually transmitted disease rates are calculated with reported cases as the numerator and total population as the denominator. Using total population in the denominator underestimates the magnitude of risk because the denominator includes individuals who are not at risk because they are not having sex and sexually active individuals who are not at risk because they are in mutually monogamous relationships. In addition to underestimating gonorrhea rates, the use of total population as a